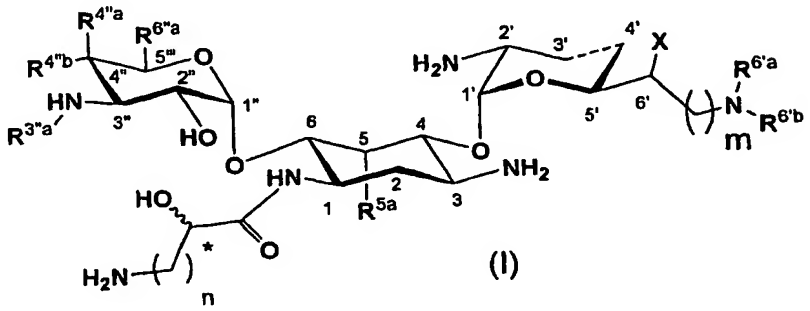
CLAIMS

[1] A compound represented by general formula (I) or a pharmacologically acceptable salt or solvate thereof:

[Chemical formula 1]



(I)

wherein

$R^{4"a}$ and $R^{4"b}$, which may be the same or different, represent a hydrogen atom or hydroxyl,

R^{5a} represents a halogen atom,

hydroxyl,

amino,

azide,

C_{1-6} alkanoyloxy,

C_{1-6} alkylsulfonyloxy,

C_{1-6} alkanoylamino,

arylcarbonylamino,

di-C_{1-6} alkylamino, or,

C_{1-6} alkylamino wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, phenyl, vinyl, amino, or hydroxymethyl,

$R^{6"a}$ represents C_{1-6} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, a halogen atom, or amino,

$R^{6'a}$ and $R^{6'b}$, which may be the same or different, represent a hydrogen atom or C_{1-6} alkyl,

$R^{3"a}$ represents a hydrogen atom or C_{1-6} alkyl,

the dashed line represents a single bond or a double bond,

m represents an integer of 0 to 2,

X represents a hydrogen atom or hydroxyl,

n represents an integer of 1 to 3, and

* represents an R or S configuration, provided that

R^{5a} represents a group as defined above other than a fluorine atom when $R^{4"a}$ represents a hydrogen atom, $R^{4"b}$ represents hydroxyl, and the dashed line represents a single bond; and R^{5a} represents a group as defined above other than hydroxyl, amino, and azide when $R^{3"a}$ represents a hydrogen atom, $R^{4"a}$ represents a hydrogen atom, $R^{4"b}$ represents hydroxyl, $R^{6"a}$ represents hydroxymethyl, both $R^{6'a}$ and $R^{6'b}$ represent a hydrogen atom, X represents a hydrogen atom, and the dashed line represents a single bond.

[2] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof,
wherein

R^{5a} represents C_{1-3} alkanoyloxy, C_{1-3} alkylsulfonyloxy, C_{1-3} alkanoylamino, phenylcarbonylamino, naphthylcarbonylamino, di-C_{1-3} alkylamino, or C_{1-3} alkylamino wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, phenyl, vinyl, amino, or hydroxymethyl.

[3] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof,
wherein

$R^{6"a}$ represents C_{1-3} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, a halogen atom, or amino.

[4] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof, wherein $R^{6'a}$ and $R^{6'b}$, which may be the same or different, represent a hydrogen atom or C_{1-3} alkyl.

[5] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof, wherein $R^{3"a}$ represents C_{1-3} alkyl.

[6] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof,
wherein

R^{5a} represents a halogen atom, hydroxyl, amino, azide, C_{1-3}

alkanoyloxy, C_{1-3} alkylsulfonyloxy, C_{1-3} alkanoylamino, phenylcarbonylamino, naphthylcarbonylamino, di-C_{1-3} alkylamino, or, C_{1-3} alkylamino wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, phenyl, vinyl, amino, or hydroxymethyl,

$R^{6"a}$ represents C_{1-3} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, a halogen atom, or amino,

$R^{6'a}$ and $R^{6'b}$, which may be the same or different, represent a hydrogen atom or C_{1-3} alkyl, and

$R^{3"a}$ represents a hydrogen atom or C_{1-3} alkyl.

[7] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof,
wherein

$R^{4"a}$ represents a hydrogen atom or hydroxyl,

$R^{4"b}$ represents a hydrogen atom,

$R^{6"a}$ represents hydroxymethyl,

any one of $R^{6'a}$ and $R^{6'b}$ represents a hydrogen atom,

the dashed line represents a single bond,

m represents 0,

X represents a hydrogen atom, and

n represents an integer of 1 to 3.

[8] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof,
wherein

R^{5a} represents a chlorine atom, hydroxyl, amino, azide, C_{1-6} alkanoyloxy, C_{1-6} alkylsulfonyloxy, C_{1-6} alkanoylamino, arylcarbonylamino, di-C_{1-6} alkylamino, or C_{1-6} alkylamino wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, phenyl, vinyl, amino, or hydroxymethyl,

$R^{6"a}$ represents hydroxymethyl,

any one of $R^{6'a}$ and $R^{6'b}$ represents a hydrogen atom,

the dashed line represents a single bond,

m represents 0,

X represents a hydrogen atom, and

n represents 2.

[9] The compound according to claim 1 or a pharmacologically acceptable salt or solvate thereof, wherein $R^{6"a}$ represents hydroxymethyl or fluoromethyl,

both $R^{6'a}$ and $R^{6'b}$ represent a hydrogen atom,

$R^{3"a}$ represents a hydrogen atom,

the dashed line represents a double bond,

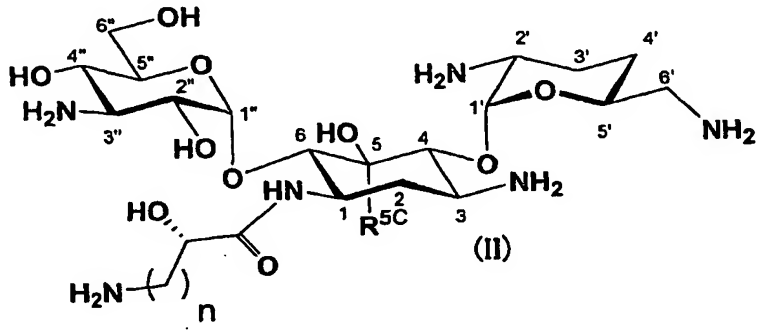
m is 0 (zero),

X represents a hydrogen atom, and

n is 1 or 2.

[10] A compound represented by general formula (II) or a pharmacologically acceptable salt or solvate thereof:

[Chemical formula 2]



wherein

R^{5C} represents C_{1-6} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by C_{1-6} alkoxy,

C_{2-6} alkenyl, or,

amino C_{1-6} alkyl wherein one or more hydrogen atoms in the amino group are optionally substituted by C_{1-6} alkyl where one or more hydrogen atoms in the alkyl group are optionally substituted by amino, hydroxyl, or heteroaryl, and

n is an integer of 1 to 3.

[11] The compound according to claim 10 or a pharmacologically acceptable salt or solvate thereof,

wherein

R^{5C} represents C_{1-3} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by C_{1-6} alkoxy; C_{2-4} alkenyl; or amino C_{1-3} alkyl wherein one or more hydrogen atoms in the amino group are optionally substituted by C_{1-6} alkyl

where one or more hydrogen atoms in the alkyl group are optionally substituted by amino, hydroxyl, or heteroaryl.

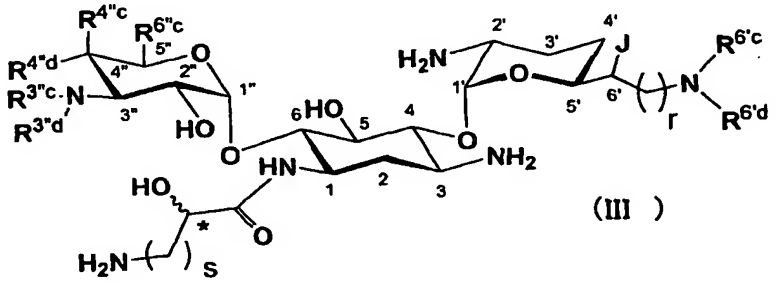
[12] The compound according to claim 10 or a pharmacologically acceptable salt or solvate thereof,
wherein

R^{5C} represents C_{1-6} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by C_{1-3} alkoxy; C_{2-6} alkenyl; or amino C_{1-6} alkyl wherein one or more hydrogen atoms in the amino group are optionally substituted by C_{1-3} alkyl where one or more hydrogen atoms in the alkyl group are optionally substituted by amino, hydroxyl, pyrrolyl, or pyridyl.

[13] The compound according to claim 10 or a pharmacologically acceptable salt or solvate thereof,
wherein

R^{5C} represents C_{1-3} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by C_{1-3} alkoxy; C_{2-4} alkenyl; or amino C_{1-3} alkyl wherein one or more hydrogen atoms in the amino group are optionally substituted by C_{1-3} alkyl where one or more hydrogen atoms in the alkyl group are optionally substituted by amino, hydroxyl, pyrrolyl, or pyridyl.

[14] A compound represented by general formula (III) or a pharmacologically acceptable salt or solvate thereof:
[Chemical formula 3]



(III)

wherein

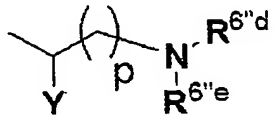
$R^{4"c}$ represents a hydrogen atom or hydroxyl,

$R^{4"d}$ represents a hydrogen atom or hydroxyl wherein, when $R^{4"c}$ represents hydroxyl, $R^{4"d}$ represents a hydrogen atom,

$R^{6"c}$ represents C_{1-6} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl,

amino, or azide; or a group of the formula:

[Chemical formula 4]



wherein $R^{6"d}$ and $R^{6"e}$, which may be the same or different, represent a hydrogen atom or amino C_{1-6} alkyl, or $R^{6"d}$ and $R^{6"e}$ together may represent a six-membered cyclic group containing 1 to 4 heteroatoms, Y represents a hydrogen atom or hydroxyl, and p represents an integer of 0 or 1,

$R^{3"c}$ and $R^{3"d}$, which may be the same or different, represent

a hydrogen atom,

C_{1-10} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl or aryl optionally substituted by hydroxyl or amino,

formimidoyl, or

amidino,

$R^{6'c}$ and $R^{6'd}$, which may be the same or different, represent

a hydrogen atom,

amino C_{1-6} alkyl,

formimidoyl,

amidino, or

benzyl optionally substituted by hydroxyl,

r represents an integer of 0 to 2,

J represents a hydrogen atom or hydroxyl,

s represents an integer of 1 to 3, and

* represents an R or S configuration,

excluding compounds wherein

$R^{4"c}$, $R^{3"c}$, $R^{3"d}$, $R^{6'c}$, and $R^{6'd}$ simultaneously represent a hydrogen atom, $R^{4"d}$ represents hydroxyl, $R^{6"c}$ represents hydroxymethyl, r represents 0, X represents a hydrogen atom, and s represents 2.

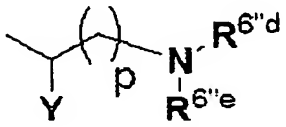
[15] The compound according to claim 14 or a pharmacologically acceptable salt or solvate thereof,

wherein

$R^{6"c}$ represents C_{1-3} alkyl wherein one or more hydrogen

atoms in the alkyl group are optionally substituted by hydroxyl, amino, or azide; or a group of the formula:

[Chemical formula 5]



wherein $R^{6"d}$ and $R^{6"e}$, which may be the same or different, represent a hydrogen atom or amino C_{1-3} alkyl, or $R^{6"d}$ and $R^{6"e}$ together represent a six-membered cyclic group containing 1 to 4 heteroatoms, Y represents a hydrogen atom or hydroxyl, and p represents an integer of 0 or 1,

$R^{3"c}$ and $R^{3"d}$, which may be the same or different, represent

a hydrogen atom,

C_{1-6} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl; phenyl optionally substituted by hydroxyl or amino; or naphthyl optionally substituted by hydroxyl or amino,

formimidoyl, or

amidino,

$R^{6'c}$ and $R^{6'd}$, which may be the same or different, represent

a hydrogen atom,

amino C_{1-3} alkyl,

formimidoyl,

amidino, or

benzyl optionally substituted by hydroxyl.

[16] The compound according to claim 14 or a pharmacologically acceptable salt or solvate thereof,

wherein

$R^{4"c}$ represents a hydrogen atom, $R^{4"d}$ represents hydroxyl, both $R^{6'c}$ and $R^{6'd}$ represent a hydrogen atom, both $R^{3"c}$ and $R^{3"d}$ represent a hydrogen atom, r represents 0, J represents a hydrogen atom, and s represents 2.

[17] The compound according to claim 14 or a pharmacologically acceptable salt or solvate thereof,

wherein

$R^{4"c}$ represents a hydrogen atom, $R^{4"d}$ represents hydroxyl, both $R^{6'c}$ and $R^{6'd}$ represent a hydrogen atom, $R^{6"c}$ represents hydroxymethyl, any one of $R^{3"c}$ and $R^{3"d}$ represents a hydrogen atom, r represents 0, J represents a hydrogen atom, and s represents 2.

[18] The compound according to claim 14 or a pharmacologically acceptable salt or solvate thereof,
wherein

$R^{4"c}$ represents a hydrogen atom, $R^{4"d}$ represents hydroxyl, $R^{6"c}$ represents hydroxymethyl, both $R^{3"c}$ and $R^{3"d}$ represent a hydrogen atom, and s represents 2.

[19] 5,4"-Diepiarbekacin,
5-deoxy-4"-epi-5-epifluoroarbekacin,
5-deoxy-4"-epi-5-epichloroarbekacin,
5-deoxy-4"-epi-5-epiaminoarbekacin,
4"-deoxy-5-epiarbekacin,
1-N-[(S)-(3-amino-2-hydroxypropanoyl)]-5,4"-diepidibekacin,
5,4"-diepi-3"-N-methylarbekacin,
5,4"-diepi-6'-N-methylarbekacin,
5-epiarbekacin,
5-deoxy-5-epichloroarbekacin,
5-deoxy-5-epiaminoarbekacin,
5-deoxy-5-epi(2-aminoethyl)aminoarbekacin,
5-epi-3"-N-methylarbekacin,
6"-aminomethyl-5-epiarbekacin,
3',4'-didehydro-5-epiarbekacin,
5-deoxy-3',4'-didehydro-5-epifluoroarbekacin,
5-deoxy-3',4'-didehydro-5-epiaminoarbekacin,
1-N-[(S)-(3-amino-2-hydroxypropanoyl)]-3',4'-didehydro-5-epidibekacin,
3',4'-didehydro-5,4"-diepiarbekacin,
5-deoxy-3',4'-didehydro-4"-epi-5-epifluoroarbekacin,
5-deoxy-3',4'-didehydro-4"-epi-5-epiaminoarbekacin,
4"-deoxy-3',4'-didehydro-5-epiarbekacin, or
6"-aminomethylarbekacin.

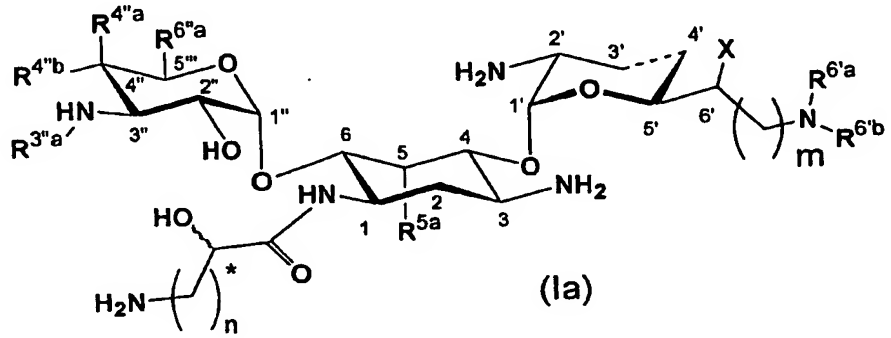
[20] A pharmaceutical composition comprising a compound

according to any one of claims 1 to 19, or a pharmacologically acceptable salt or solvate thereof.

[21] An antimicrobial agent comprising a compound according to any one of claims 1 to 19, or a pharmacologically acceptable salt or solvate thereof.

[22] An anti-MRSA agent comprising a compound represented by general formula (Ia) or a pharmacologically acceptable salt or solvate thereof:

[Chemical formula 6]



wherein

$R^{4"a}$ and $R^{4"b}$, which may be the same or different, represent a hydrogen atom or hydroxyl,

R^{5a} represents a halogen atom,

hydroxyl,

amino,

azide,

C_{1-6} alkanoyloxy,

C_{1-6} alkylsulfonyloxy,

C_{1-6} alkanoylamino,

arylcarbonylamino,

di-C_{1-6} alkylamino, or

C_{1-6} alkylamino wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, phenyl, vinyl, amino, or hydroxymethyl,

$R^{6"a}$ represents C_{1-6} alkyl wherein one or more hydrogen atoms in the alkyl group are optionally substituted by hydroxyl, a halogen atom, or amino,

$R^{6'a}$ and $R^{6'b}$, which may be the same or different, represent a hydrogen atom or C_{1-6} alkyl,

$R^{3''a}$ represents a hydrogen atom or C_{1-6} alkyl,

the dashed line represents a single bond or a double bond,

m represents an integer of 0 to 2,

X represents a hydrogen atom or hydroxyl,

n represents an integer of 1 to 3, and

* represents an R or S configuration, provided that

R^{5a} represents a group as defined above other than a fluorine atom when $R^{4''a}$ represents a hydrogen atom, $R^{4''b}$ represents hydroxyl, and the dashed line represents a single bond.

[23] An anti-MRSA agent comprising a compound according to any one of claims 10 to 13 or a pharmacologically acceptable salt or solvate thereof.

[24] An anti-MRSA agent comprising a compound according to any one of claims 14 to 18 or a pharmacologically acceptable salt or solvate thereof.

[25] Use of a compound according to any one of claims 1 to 19 or a pharmacologically acceptable salt or solvate thereof, for the manufacture of a pharmaceutical composition.

[26] Use of a compound according to any one of claims 1 to 19 or a pharmacologically acceptable salt or solvate thereof, for the manufacture of an antimicrobial agent.

[27] A method for treating or preventing an infectious disease, comprising the step of administering a compound according to any one of claims 1 to 19 or a pharmacologically acceptable salt or solvate thereof to an animal including a human.